

REMARKS

Favorable reconsideration of this application, in light of the preceding amendments and following remarks, is respectfully requested. Claims 24, 28, 29, 31-37, 39-40, 46-54, and 56-65 are pending in this application. Claims 25-27, 30, and 55 have been cancelled. Claims 24, 28, 46, 56 and 65 have been amended. Claims 24 and 46 are the independent claims.

Claim Objections

Claim 65 is objected to because the claim language is confusing due to the wording of the claim, the abbreviations, and the missing commas. Applicants have amended claim 65 accordingly. Therefore, withdrawal of the objection to claim 65 is respectfully requested.

Example Embodiments

Example embodiments recite a DNA fragment for causing a cell to produce an arbitrary protein including cDNA of a virus vector that has been constructed by inserting a coding gene of an arbitrary protein into an RNA virus and a ribozyme sequence ligated to the 3' end of the virus vector cDNA, wherein the virus vector originates in a plant virus that has a suppressor against a silencing reaction of plants, and the ribozyme sequence includes a ribozyme sequence of satellite tobacco ringspot virus.

Usually, a plasmid vector is employed in a plant such that an enhanced expression efficiency is obtained. Use of a virus vector, on the other hand, tends to cause a deterioration in an expression efficiency. As

illustrated in FIG. 7 and other examples of the present application, an effect of example embodiments is higher expression efficiency (even using a virus vector) due to the ligation of the ribozyme sequence to the 3' end of the virus vector and the transformation step being performed in multiple stages.

Furthermore, example embodiments provide for transforming steps at two different stages, which prevents or reduces the possibility of a protein becoming chimeric such that the expression of a function of the protein is improved.

Rejections under 35 U.S.C. § 102

Rasochova

Claims 24-29, 31, 32, 37, 39 and 40 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Publication No. 2003/0074677 to Rasochova et al. (hereinafter "Rasochova"). Applicants respectfully traverse this rejection for the reasons detailed below.

Rasochova does not teach or suggest, nor would one skilled in the art be motivated to select from a variety of virus vectors and ribozyme sequences available, a virus vector that originates in a plant virus having a suppressor against a silencing reaction of plants and a ribozyme sequence of satellite tobacco ringspot virus, and to use, for a DNA fragment causing a cell to produce an arbitrary protein, the aforementioned virus vector and ribozyme sequence as recited in amended claim 24.

Further, Applicants submit that Rasochova does not teach or suggest “a ribozyme sequence ligated to the 3’ end of the virus vector cDNA” as recited in independent claim 24. Rather, paragraph [0053] of Rasochova teaches a ribozyme situated proximate to the 3’ end of the modified RNA3, the ribozyme cleaving the modified RNA3 at the 3’ end.

The Applicants, therefore, respectfully request that the rejection to Claim 24 under 35 U.S.C. § 102(b) be withdrawn.

Claims 25-29, 31, 32, 37, 39-40 and newly added claim 65, dependent on independent claim 24, are patentable for the reasons stated above with respect to claim 24 as well as for their own merits.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection to independent claim 24 and all claims dependent thereon.

Mori

Claims 24-26, 30, 31, 37, 39 and 40 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mori et al. (hereinafter “Mori”), Plant Journal, Vol. 27, No. 1, pp. 79-86 (2001). Applicants respectfully traverse this rejection for the reasons detailed below.

Mori does not teach or suggest a virus vector which originates in a plant virus that has a suppressor against a silencing reaction of plants as recited in amended independent claim 24.

Furthermore, Applicants submit that Mori does not teach or suggest “cDNA of a virus vector that has been constructed by inserting a coding gene of an arbitrary protein into an RNA virus” as recited in independent claim 24. Rather, Mori teaches inserting a RNA1-cDNA fragment into a binary transformation vector or plasmid, rather than an RNA virus.

The Applicants, therefore, respectfully request that the rejection to Claim 24 under 35 U.S.C. § 102(b) be withdrawn.

Claims 25-26, 30, 31, 37, 39-40 and newly added claim 65, dependent on independent claim 24, are patentable for the reasons stated above with respect to claim 24 as well as for their own merits.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection to independent claim 24 and all claims dependent thereon.

Rejections under 35 U.S.C. § 103

Mori in view of Zuo

Claims 32-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori et al. in view of U.S. Patent No. 6,452,068 to Zuo et al. (hereinafter “Zuo”). Applicants respectfully traverse this rejection for the reasons detailed below.

Even assuming *arguendo* that Zuo could be combined with Mori (which Applicants do not admit), the Examiner has failed to show how Zuo remedies the deficiencies of Mori with respect to independent claim 24. Thus, claims 32-

36, dependent on independent claim 24, are patentable over Mori and Zuo for the reasons set forth above with respect to independent claim 24.

The Applicants, therefore, respectfully request that the rejection to Claims 33-36 under 35 U.S.C. § 103(a) be withdrawn.

Mori in view of David

Claims 46-48, 50-51 and 55-64 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori in view of David et al. (hereinafter "David"), Plant Physiology, Vol. 125, pp. 1548-1553, April 2001. Applicants respectfully traverse this rejection for the reasons detailed below.

Applicants submit that neither Mori, David nor the combination thereof teaches or suggests a second transforming step of transfecting the transformant, obtained in the screening step, with a protein-expressing DNA fragment in which cDNA of a virus vector that has been constructed by inserting a coding gene of an arbitrary protein into an RNA virus is ligated to an inducible promoter which is induced by the transcription factor and ligating a ribozyme sequence to 3' end of the virus vector as recited in amended independent claim 46. Rather, as is stated above with reference to independent claim 24, Mori teaches inserting a RNA1-cDNA fragment into a binary transformation vector or plasmid instead of constructing cDNA of a virus vector by inserting a coding gene of an arbitrary protein into an RNA virus. In addition, Mori crosses a GVG-expressing plant with a 2FR-expressing plant, i.e., crosses transfected

organisms with each other in one step, unlike the transformation that takes place in two different stages as recited in claim 46.

David transforms a plasmid at two different stages, but as explained previously, a normal plasmid and virus vector are different from each other in terms of efficient expression. Specifically, the plasmid vector as in David has a sufficiently high expression efficiency. Therefore, one of ordinary skill in the art would not have been motivated to insert a virus vector at two different stages as is recited in independent claim 46 based on a combination of Mori and David, because the plasmid vector of David already achieves an enhanced expression efficiency.

The Applicants, therefore, respectfully request that the rejection to Claim 46 under 35 U.S.C. § 103(a) be withdrawn.

Claims 47-48, 50, 51, and 55-64, dependent on independent claim 46, are patentable for the reasons stated above with respect to claim 46 as well as for their own merits.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection to independent claim 46 and all claims dependent thereon.

Mori in view of David and Zuo

Claim 49 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori in view of David and further in view of Zuo. Applicants respectfully traverse this rejection for the reasons detailed below.

Even assuming *arguendo* that David and Zuo could be combined with Mori (which Applicants do not admit), the Examiner has failed to show how David and Zuo remedies the deficiencies of Mori with respect to independent claim 24. Thus, claim 49, dependent on independent claim 24, is patentable over Mori, David and Zuo for the reasons set forth above with respect to independent claim 24.

The Applicants, therefore, respectfully request that the rejection to Claim 49 under 35 U.S.C. § 103(a) be withdrawn.

Mori in view of David and Rasochova

Claims 52-54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori in view of David and further in view of Rasochova. Applicants respectfully traverse this rejection for the reasons detailed below.

Even assuming *arguendo* that David and Rasochova could be combined with Mori (which Applicants do not admit), the Examiner has failed to show how David and Rasochova remedy the deficiencies of Mori with respect to independent claim 46. Thus, claims 52-54, dependent on independent claim 46, are patentable over Mori, David and Rasochova for the reasons set forth above with respect to independent claim 46.

The Applicants, therefore, respectfully request that the rejection to Claims 52-54 under 35 U.S.C. § 103(a) be withdrawn.

Mori in view of Martinez

Claims 32-34 and 65 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori in view of Martinez et al (The Plant Journal, Vol. 19, No. 1, pages 97-106, 1999, hereinafter "Martinez"). Applicants respectfully traverse this rejection for the reasons detailed below.

Even assuming *arguendo* that Martinez could be combined with Mori (which Applicants do not admit), the Examiner has failed to show how Martinez remedies the deficiencies of Mori with respect to independent claim 24. Thus, claims 32-34 and 65, dependent on independent claim 24, are patentable over Mori and Martinez for the reasons set forth above with respect to independent claim 24.

The Applicants, therefore, respectfully request that the rejection to Claims 32-34 and 65 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

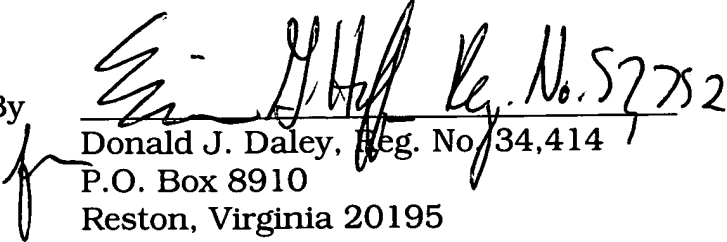
In view of the above remarks and amendments, the Applicants respectfully submit that each of the pending objections and rejections has been addressed and overcome, placing the present application in condition for allowance. A notice to that effect is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Erin G. Hoffman, Reg. No. 57,752, at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By  Reg. No. 57,752
Donald J. Daley, Reg. No. 34,414
P.O. Box 8910
Reston, Virginia 20195
(703) 668-8000

DJD/EGH:ljs
886282.1